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**REMOTE AUXILIARY AIR CONDITIONING  
AND AIR DISTRIBUTION SYSTEMS  
FOR VOLVO L-4 CHASSIS**

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**INSTALLATION GUIDELINES**

For Volvo Truck Models VN630 and 670

Dometic Environmental Corporation

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## **INTRODUCTION**

This document contains supplemental guidelines for installing the Qt-series control and air distribution for the Dometic auxiliary air conditioning system on the Volvo L-4 chassis. It is intended to be used in conjunction with the standard installation manual, which covers all other aspects of installing, testing and operating this system.

Do not attempt to install any components until you read and understand the instruction in both manuals.

## LOCATING THE COMPONENTS

The Dometic remote auxiliary air conditioning system consists of two basic components: an outside condensing unit, which contains the condenser and an exhaust fan, and an inside unit, which contains the compressor, heater, evaporator and blower (CHEB). The two units are connected by precharged refrigerant lines with quick-connect fittings.

For the Volvo L-4 chassis, we recommend placing the CHEB unit in the passenger-side luggage compartment alongside the Volvo factory air conditioning unit (Fig. 1), and mounting the condensing unit either horizontally under the truck (Figs. 2a-2b), with exhaust air blowing down toward the road, or vertically on the back wall of the sleeper. Refer to the primary installation manual for important guidelines not included here.

Use the template to position the CHEB unit correctly (Fig. 3). Place the template with the “edge of the unit” 1-1½” from the factory HVAC unit mounting foot. The “edge of the unit” line with the notations for the quick connections should be nearest the bunk wall. The line of the “edge of the unit” should be approximately 5” from the bunk wall. Mark for the two quick connect holes 3½” off the “edge of the unit” using the construction lines (Fig. 4). Follow the step-by-step procedures in the installation manual for mounting the unit and drilling holes.

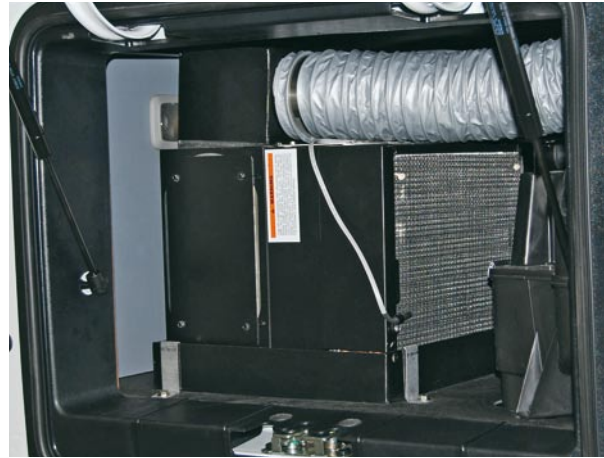


Figure 1 - CHEB installed in luggage compartment



Figure 2a - Condensing unit mounted under truck



Figure 2b - Condensing unit mounted under truck

We recommend you install the return air grill under the bunk in the side panel on the passenger side. This will make it less likely for the air flow to be blocked by something in the luggage compartment, and will also give you easy access to the quick-connect refrigerant fittings with a wrench.

The supply air will be routed through the Volvo ductwork, and will also be ducted to one or two additional discharge grills, depending on the BTU model you are installing.

**IMPORTANT! Refer to the Dometic installation manual for details on installing and connecting the CHEB and condensing unit.**

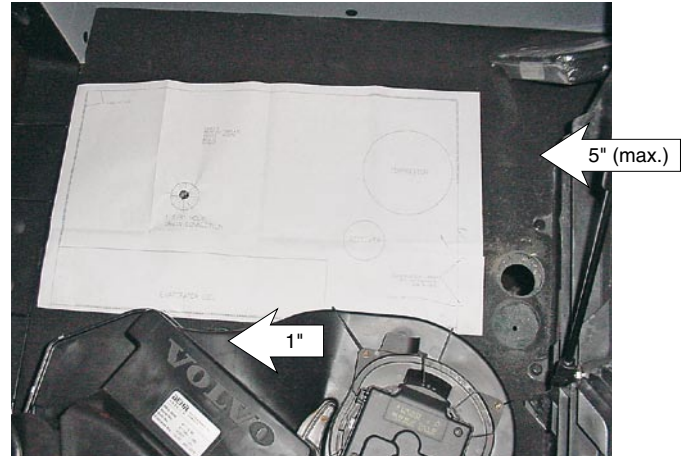


Figure 3 - Laying out the CHEB template

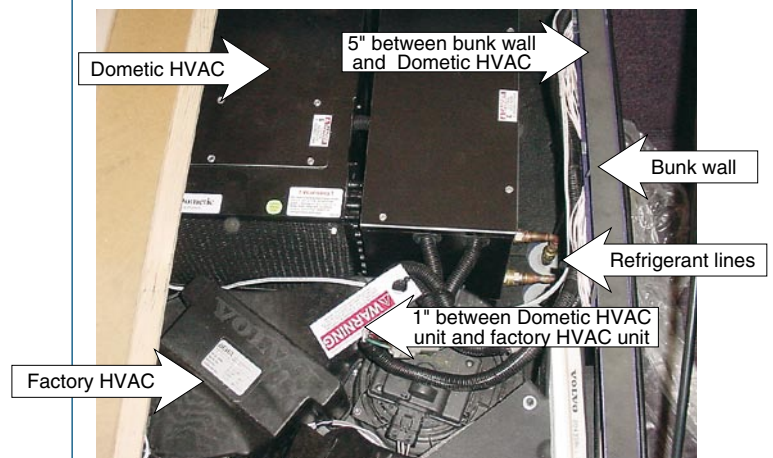


Figure 4 - Installing the CHEB

## INSTALLING THE CONTROL

### Installing the Control/Display Panel

For the L-4 chassis, we recommend mounting the control/display panel on the wall above the drivers' side cabinet (Fig. 5); remove the truck's HVAC panel to access the area to make it easier to route the cabling to the Power Logic Box (PLB). The CXP cable will run down inside the wall and across the luggage compartment to the PLB.

### Installing the Power Logic Box

The PLB will be mounted under the rear, center portion of the bunk (Fig. 6).

To mount the PLB, first remove the backing plate from the unit by removing the four machine screws at the bottom. Place the backing plate on the front of the bunk center area, off-center toward the passenger side. Mark the four mounting holes and remove the plate. Drill four 7/32" holes. Use four #10 machine screws to mount the box. (The easiest way to do this is to put the machine screws through the holes and secure with a nut.) Replace the mounting plate onto the PLB. Slide the PLB behind the bunk and push onto the machine screws. Secure the box with four nuts and lockwashers. KEPS nuts are easiest to use (Fig. 7).

**IMPORTANT! Refer to the Dometic installation manual for details on routing and connecting cables from the control/display panel to the PLB and CHEB.**

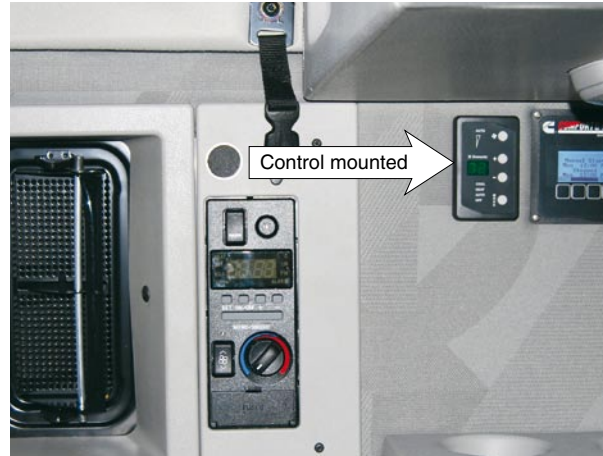


Figure 5 - Control/Display panel mounted

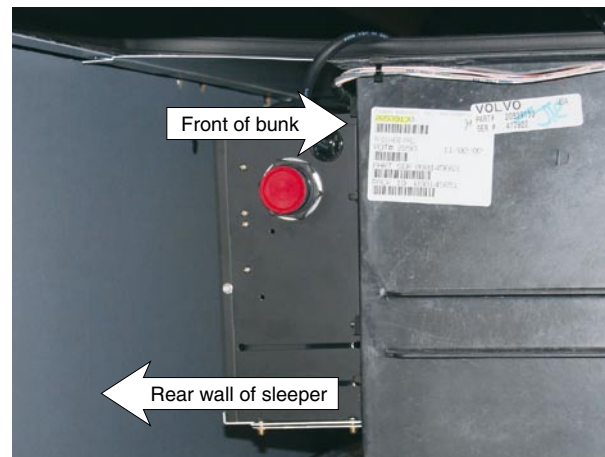


Figure 6 - PLB mounting location

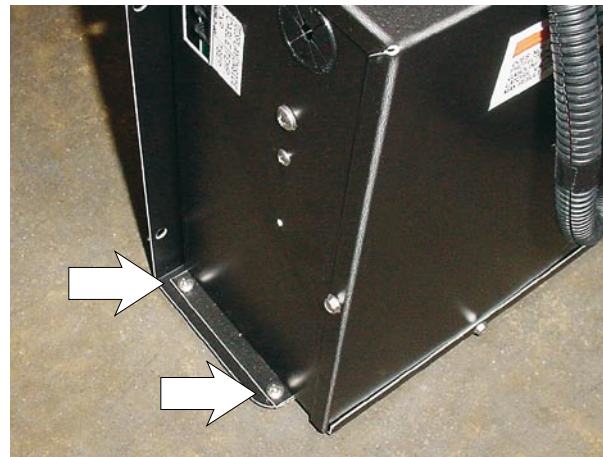


Figure 7 - Fastener location on PLB

## INSTALLING THE RETURN AIR VENT

The return air vent will be mounted under the bunk in the side panel on the passenger side. It will just fit between the panel supports on the backside of the kick panel.

(Note: if your return air kit has the two 12½" x 5½" grills instead of the single square grill, either use a 4" hole saw to cut at least two holes behind each grill or use a reciprocating saw to cut out the rectangular holes for these grills.)

Locate the supports and cutout for the grill. Use a hole saw to cut out the four corners (Fig. 8), and a reciprocating saw to complete the hole for the vent (Figs. 9-10).

**Remember, good air flow from the return air grill to the CHEB evaporator coil is critical for your air conditioning system to perform correctly. Do not allow anything to block this air flow.**



Figure 8 - Location for cutting return air vent



Figure 9 - Return air vent hole cut



Figure 10 - Return air grill flange installed



## INSTALLING THE SUPPLY AIR DISTRIBUTION

For the L-4 chassis installation, you will use the factory-installed Volvo ductwork for supply air distribution. In addition, you will add one or two 4" ducts to extra discharge grills. The 10,000 BTU air conditioner uses one 4" duct, and the 14,000 BTU system uses two.

### Connecting to the Volvo Ductwork

First, remove the rubber duct transition that is located in the passenger-side luggage compartment (Fig. 11). It is secured only by force, so you can remove it by pulling.

Remove the duct from the truck, and cut a 4" hole as shown in the photograph (Fig. 12).

Find the V4 RND black 4" round grill. Trim the flange on two sides, as shown in the photographs (Figs. 13-14), so it will fit into the duct transition.



Figure 12 - Hole cut in duct transition

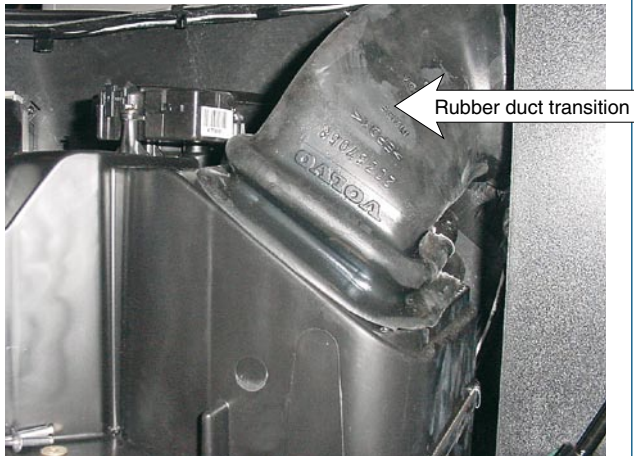


Figure 11 - Duct transition location



Figure 13 - First trimming cut on 4" grill



Figure 14 - V4 RND trimmed to fit

Install the grill from the inside of the duct with the vanes pointing upward. Use two cable ties to secure the vanes so they will not turn.

Drill holes in the duct transition, and pop rivet into place using the supplied rivets and brass washers (Figs. 15a-15b).

Push the duct and grill back into the hole in the Volvo duct. Attach the 4" duct with a hose clamp. Push the duct over the grill until it is tight against the transition, and then tighten the clamp (Fig. 16).



Figure 15a - V4 RND black installed in the duct transition

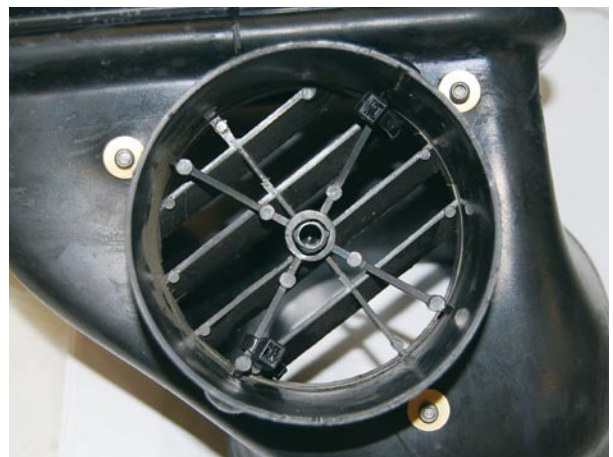


Figure 15b - V4 RND black installed in the duct transition



Figure 16 - Duct transition reinstalled

### Installing the Remaining 4" Ductwork and Grills

The location for the additional discharge grill or grills (one for the 10,000 BTU AC and two for the 14,000 BTU AC) is up to the installer or owner. Based on our experience with this truck chassis, we recommend the following (Fig. 17):

Up through the passenger-side cabinet  
Low on the floor, driver's side, in front of the cabinets

You will need to install a new plenum on top of the CHEB unit. Use a 1/4" nut driver to remove the plastic 7" hose adaptor. Remove the top cover plate with the four screws, and reinstall on the side hole. Find the 4 x 4 x 4" three-way plenum or 4 x 4" two-way plenum. Reinstall the screws into the new plenum (Figs. 18a-18b).

**IMPORTANT! Refer to the Dometic installation manual for details in connecting ductwork to the discharge grills and CHEB plenum.**



Figure 17 - 4" ducts installed low on the floor on the driver's side

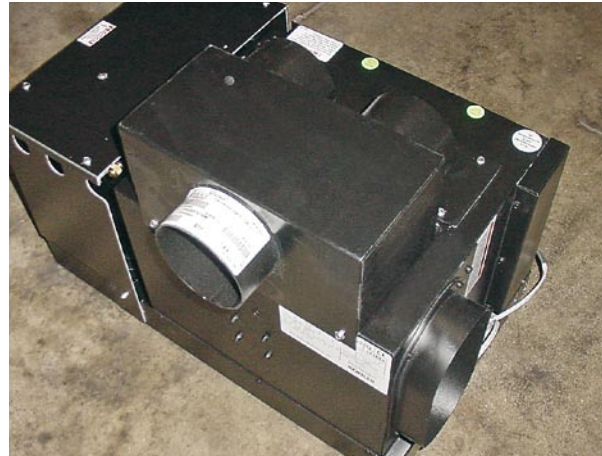


Figure 18a - Installing the air distribution plenum



Figure 18b - Installing the air distribution plenum

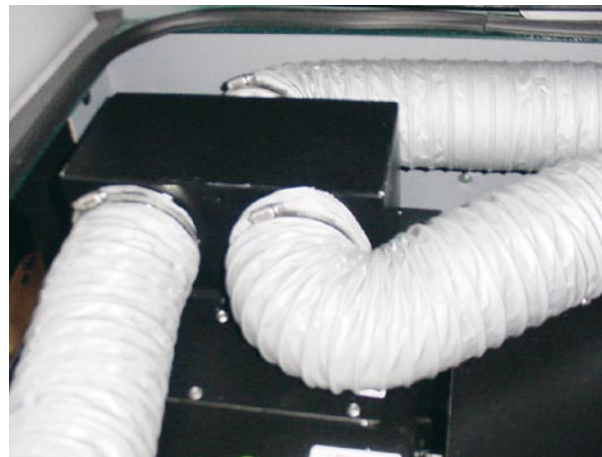


Figure 19 - CHEB with ductwork installed



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